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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,491	02/07/2007	Qingquan Su	035924-0135	2150
22428 7590 05/11/2010 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER				
DAVIS, PATRICIA A				
ART UNIT		PAPER NUMBER		
1795				
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05/11/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/582,491

**Applicant(s)**

SU ET AL.

**Examiner**

PATRICIA DAVIS

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 1,2 and 4-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 is/are REJECTED.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

1. The Applicant's amendment filed February 5, 2010 has been received. Claims 1, 2 and 4 were cancelled. Claim 3 was amended.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action November 12, 2009.

***Claim Rejections - 35 USC § 103***

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubayashi in view of Sawada et al. (JP 2002-289226) (hereinafter "Sawada").

Regarding claim 3, Matsubayashi teaches a method for operating a fuel cell system with electric power supply from a fuel cell to the external load, which includes piping (100) that supplies fuel gas (raw material fuel), a reforming section (31), a burner (combustion section 32), a CO stripper (carbon monoxide reduction section 5) to reduce the carbon monoxide content in the reformat and a fuel cell (6) that takes in the reformed gas from the CO stripper. Matsubayashi further teaches that the unreacted exhaust is sent back to the burner (combustor 32) to heat the burner by way of piping (109). Matsubayashi further teaches a piping (100) that supplies fuel gas (raw material fuel) (see pars. 0016, 0017, 0019 and 0023).

Matsubayashi does not specifically teach a reforming section temperature comparing process including steps of detecting temperature in the reforming section

and comparing the detected temperature in the reforming section and comparing the detected temperature with predetermined first and second temperatures; a current decreasing process for decreasing an output current from the fuel cell when the detected temperature is equal to or lower than the first temperature in the reforming section temperature comparing process and maintaining the output current for a predetermined time period after the output current has been decreased; and a current increasing process of increasing the output current from the fuel cell when the detected temperature is equal to or higher than the second temperature in the reforming section temperature comparing process and maintaining the output current for a predetermined time period after the output current has been increased and does not specifically teach does a fuel increasing process of increasing the supply amount of the raw material fuel from the raw material fuel supply section when a number of consecutive times the current decreasing process has been carried out reaches a predetermined value; and a fuel decreasing process of decreasing the supply amount of the raw material fuel from the raw material fuel supply section when a number of consecutive times the current increasing process has been carried out reaches a predetermined value.

However, Sawada teaches a reformer temperature control system of a fuel cell power plant, when the temperature of a reformer is higher than the target temperature (second temperature), a direct current value (predetermined value) is made to increase by a direct current value control means, the quantity of the reformed gas consumed with a fuel cell body can be made to increase. However, when the temperature of a reformer is lower than the target temperature (first temperature), a direct current value

(predetermined value) is decreased by a direct current value control means (see par. 0011). Sawada further teaches that the reformer temperature control system of the fuel cell power plant is able to increase or decrease a direct current value by the direct current value control means in any way when the temperature of the reformer is higher or lower than the target temperature, thereby controlling the temperature and performance of the reformer (see par. 0025). Sawada further teaches a temperature sensor (10) which measures the temperature of the reformer (1), the temperature sensor (10) is connected to a controller (11), where the target temperature setting means (12) and the ac output desired value setting-out means (13) are connected to the controller (11), and the direct-current controller (14) of the inverter (3) and the flow control valve (15) as a flow control means are provided in the raw-materials-and-mineral-fuel feed pipe (4). Sawada further teaches that the controller (11) is equipped with the direct-current value control means (16), the raw-materials-and-mineral-fuel amount-of-supply setting-out means (17), and the raw materials-and-mineral-fuel amount-of supply control means (18) (see pars. 0016 and 0017; drawing 2).

Therefore, it would be obvious to one with ordinary skill in the art to incorporate a controller capable of increasing or decreasing the amount of fuel supplied to the fuel cell after a consecutive amount of measurements to the fuel cell system and fuel cell supplier of Matsubayashi, because Sawada teaches a the controller that is capable of doing this to send the correct amount of the fuel cell supply to the system for the desired performance.

***Response to Arguments***

4. Applicant's arguments filed February 5, 2010 have been fully considered but they are not persuasive.

*Applicant's principal argument is:*

*(a) that Sawada does not teach "maintaining the output current for a predetermined time period after the output current has been decreased (increased) and "increasing (decreasing) the supply amount of raw material fuel...when a number of consecutive times the current decreasing (increasing) process has been carried out reaches a predetermined value."*

In response to Applicant's argument, please consider the following comment:

(a) It is the position of the Examiner that the extension of the current increasing process or the current decreasing process for further iterations is no more than a duplication of parts that the control system would be capable of performing. The mere duplication of parts, without any new or unexpected results, is within the ambit of one of ordinary skill in the art. See *In re Harza*, 124 USPQ 378 (CCPA 1960) (see MPEP § 2144.04). Therefore, it would have been obvious to one with ordinary skill in the art to have the fuel cell system control the increase or decrease the raw material fuel from the raw material supply after the current decreasing or current increasing process, respectively, has been has been carried out for further iterations.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICIA DAVIS whose telephone number is (571)270-7868. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICIA DAVIS/  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795